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TECHNICAL SUMMARY  
FINANCIAL MANAGEMENT PROFILE  
OF THE  
NATIONAL INSTITUTES OF HEALTH

PREPARED  
BY THE STAFF  
OF THE  
U.S. GENERAL ACCOUNTING OFFICE

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## FOREWORD

The National Institutes of Health (NIH) is an organizational component of the Department of Health and Human Services. In fiscal 1982 NIH received approximately \$4 billion in budget authority. NIH is the principal medical research facility of the federal government. The mission of NIH is to improve the health of the nation by increasing the understanding of the processes underlying human health and by acquiring new knowledge to prevent, detect and treat diseases.

This technical summary is one of eleven volumes of detailed information that supports the overall Financial Management Profile for the Department of Health and Human Services (AFMD 84-15, April 9, 1984). The technical summaries provide detailed information on the major organizational components of the Department of Health and Human Services (the Department), their financial management systems, and major internal control strengths and weaknesses in these systems.

The financial management profile of the Department and the eleven technical summaries were prepared by GAO as a pilot test of a new audit approach--called Controls and Risk Evaluation (CARE)--for (1) identifying and describing the financial management systems used by an agency and (2) assessing and ranking the internal control strengths and weaknesses of the systems. This analysis is based on reviews of available systems documentation, discussions with agency personnel, and reviews of prior GAO and Inspector General reports. Tests were not performed on actual information processed by and recorded in the systems, therefore, conclusions cannot be reached about whether the systems' internal controls were actually operating as designed.

The information in this technical summary is intended for use in:

- planning future tests and evaluation of the accounting and financial management systems at the National Institutes of Health.
- monitoring the Institutes' efforts to implement the Federal Managers' Financial Integrity Act of 1982, and
- supporting and enhancing the understanding and application of the CARE-based methodology by designers, operators, and evaluators of agency and accounting and financial management systems.

The technical summary provides a description of the financial management structure of NIH. Twenty financial management systems form the financial management structure of NIH. These systems are used to (1) control appropriated funds and other resources, (2) authorize the use of funds and other resources, and (3) capture, record, process, and summarize financial information related to the

execution of budget authority. The profile also provides a detailed analysis of the twenty systems and identifies specific internal control strengths and weaknesses within each system.

During the course of GAO's survey agency officials were briefed. The technical summary was provided to cognizant agency officials for their review and comment. Agency comments were considered and changes were made where appropriate. The assistance and cooperation of agency management enhanced the successful completion of the work. The results of the survey will be used by GAO as the basis for planning future reviews of NIH's financial management systems to ascertain if they conform to the Comptroller General's principles and standards for federal agencies. The technical summary is being provided to NIH to assist it in its continuing efforts to improve financial management.

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THE NATIONAL INSTITUTES OF HEALTH--ITS  
RESPONSIBILITIES, ACTIVITIES, AND FINANCIAL  
MANAGEMENT STRUCTURE

The National Institutes of Health (NIH) is the principal medical research component of the Department of Health and Human Services (Department). NIH is responsible for conducting and supporting medical research in specified health areas. In fiscal 1982, NIH's budget authority was \$4 billion. Based upon our review and analysis, NIH's financial management structure is comprised of 20 systems.

In assessing the internal controls of these systems, we determined that, except for the deficiencies noted below, the controls generally appeared adequate to ensure that accounting data is properly captured, recorded and reported. However, controls did not appear adequate to ensure:

- proper reporting of expenditures by contractors and grantees, and
- proper correction of all errors.

We have discussed this technical summary with NIH officials and they are aware of the deficiencies noted above. NIH agrees that they have no control over cash drawdowns of advanced cash to grantees because these responsibilities rest with the Departmental Federal Assistance Financing System.

The objectives, scope, and methodology for our survey are discussed in appendix I. Appendix II lists the internal control strengths and weaknesses we identified in the financial management systems, and appendix II shows the interrelationship of these systems. Appendix IV lists the NIH systems that were not reviewed. Agency comments are contained in appendix V.

RESPONSIBILITIES OF THE  
NATIONAL INSTITUTES OF HEALTH

NIH is the principal medical research organization in the federal government. The mission of NIH is to improve the health of the nation by increasing the understanding of the processes underlying human health and by acquiring new knowledge to prevent, detect and treat diseases. Specifically, NIH:

- Supports research in universities, medical schools, hospitals and research institutions in this country and abroad.
- Conducts research in its own laboratories and clinics.

- Supports training for the development of medical researchers.
- Helps to develop and maintain research resources.
- Identifies research results which can be applied to the care of patients and helps to transfer such advances to the health care system.
- Prompts effective communication of health information to scientists, health practitioners and the public.
- Develops and recommends policies related to the conduct and support of biomedical research.

NATIONAL INSTITUTES OF HEALTH  
ORGANIZATIONAL STRUCTURE

NIH consist of the Office of the Director, 11 research institutes, 4 divisions, the Fogarty International Center, the Clinical Center, and the National Library of Medicine. The Director of NIH is responsible for the overall efficient and effective implementation of NIH programs. The Director provides overall leadership and maintains close liaison with the Department on matters relating to medical research, research training, health profession education and training, manpower resources, and biomedical communications.

The other organizational components of NIH are responsible for the day-to-day operation of NIH programs. A brief description of these components follows.

- National Cancer Institute conducts, contracts, and provides grants for research relating to the cause, prevention, diagnosis and treatment of cancer.
- National Heart, Lung and Blood Institute is responsible for research relating to all aspects of cardiovascular diseases.
- National Institute of Child Health and Human Development conducts and supports research on the productive, developmental, and behavioral processes determining the health of children, adults, families and populations.
- National Institute of Dental Research is concerned with research pertaining to oral and dental diseases and conditions.
- National Institute of Environmental Health Sciences investigates the effects of chemical, physical and biological environmental agents on human health.
- National Institute of General Medical Sciences supports research in basic biomedical science from genetics to

pharmacology and systemic response to trauma and anesthesia.

- National Institute of Neurological and Communicative Disorders and Stroke conducts and supports research on human neurological and communicative disorders such as Parkinson's disease, epilepsy, multiple sclerosis, deafness, and stroke.
- National Eye Institute supports and conducts studies on the eye and visual systems.
- National Institute of Allergy and Infectious Diseases is responsible for research of a wide variety of diseases believed to be attributable to infectious agents such as bacteria, viruses, and parasites.
- National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases conducts and supports basic and clinical research into a variety of diseases associated with arthritis, metabolism (i.e., diabetes) and the digestive process (e.g., kidney disease).
- National Institute on Aging is concerned with the aging process and the associated physical, psychological, and social factors related to advanced age.
- Division of Computer Research and Technology provides computer research and service support to the various NIH biomedical research programs.
- Division of Research Grants supports the Office of the Director by formulating grant and grant award policies and procedures.
- Division of Research Resources provides general research support to clinical research centers, biotechnology research centers, and regional primate research centers.
- Division of Research Services provides scientific, engineering, and technical services in support of NIH activities (i.e., instrumentation design and development and research animal production).
- John F. Fogarty International Center for Advanced Study in the Health Sciences fosters the exchange of biomedical information internationally and promotes discussion, study, and research on the development of science internationally.
- Clinical Center brings scientists working in the centers' labs into close proximity with clinicians caring for patients so that they may collaborate on problems of mutual concern.

- National Library of Medicine serves as the nation's chief medical information source providing medical library services and on-line bibliographic search capabilities to the public, private agencies, organizations, institutes, and individuals.

FINANCIAL MANAGEMENT STRUCTURE OF  
THE NATIONAL INSTITUTES OF HEALTH

The financial management structure of the National Institutes of Health is composed of 20 systems. All 20 of these systems were reviewed in this survey. In addition, NIH runs 41 other systems which provide NIH management with various analyses and reports on grants and other management information. Basically, these remaining systems manipulate the information contained in the 20 financial management systems. These other systems, which were not reviewed because of limited resources and timeframes, are listed in appendix IV. A brief description of the 20 financial management systems follows.

- NIH Central Accounting System captures all financial transactions, maintains a general ledger and other related files, produces a series of external and internal reports related to the results of NIH's financial operations, and controls NIH's budget authority.
- Nonexpendable Personal Property System maintains the personal property subsidiary ledger which records and controls the personal property of NIH (i.e. typewriters, cameras, adding machines, etc.). The system maintains detailed property records including cost, location and status of property.
- Administrative Data Base System is used to control the procurement of goods and services, requisition and receipt of goods and services, and payment of corresponding expenses.
- Information for Management Planning Analysis and Coordination (IMPAC) is a computer based system which records external NIH research grant obligations. This system maintains information on research grants, research contracts, research fellowships, training grants, and National Library of Medicine programs.
- Service and Supply Fund is used to record and control services and supply costs incurred by NIH organizations. The Fund uses 16 separate systems--14 automated and 2 manual--to record disbursements and costs for services and materials and to allocate those costs to the various NIH organizations. For example, if the National Eye Institute requires photographic services, the Service and Supply Fund would record appropriate charges received from the Photographic Billing System for the services and materials used. The National Eye Institute's account would be charged for the appropriate expense.

The 16 systems comprising the Service and Supply Fund are listed below. The title of each of the systems denotes what type of disbursements and costs the system controls. A description of each system and the costs it controls is presented later in this chapter. The systems are:

- Shop Stores Billing Systems (facilities management)
- Supply Operations Branch Billing System (NIH self-service stores)
- Postal Services Billing System
- Biomedical Engineering and Instrumentation Branch Billing System
- Division of Computer Research and Technology (DCRT) Project Accounting System
- Personal Property Billing System
- Design Billing System
- Glassware Billing System
- Graphics Billing System
- Large Research Animal Billing System
- Photography Billing System
- Printing and Reproduction Billing System
- Scientific Equipment Rental Billing System
- Small Animal Billing System
- Tissue Culture and Bacteriological Media Billing System
- Procurement Branch Billing System

All systems are automated with the exception of the Large Research Animals Billing System and the Tissue Culture and Bacteriological Media Billing System. A synopsis of the 20 financial management systems in NIH follows.

#### CENTRAL ACCOUNTING SYSTEM

The Central Accounting System (CAS) maintains NIH's general ledger accounts; produces internal financial reports and external financial reports required by Treasury, Office of Management and Budget, and the Congress; and provides for the administrative control of NIH's appropriated funds. CAS has been operational since 1972 and uses computer equipment located in NIH's Bethesda,

Maryland computer center. The system inputs, processing, outputs and related internal control strengths and weaknesses are discussed below.

### System inputs

Inputs to CAS are received on a daily, bi-weekly, monthly, and annual basis. CAS receives input in the form of hardcopy documents as well as machine media files from other automated systems. Daily, CAS receives documents relating to procurement, supply, service, travel, training, and grant and contract award transactions. A magnetic tape file of payroll cost information is received on a bi-weekly basis. Machine media files relating to grantee and contractor cash payments and expenditures, Service and Supply Fund, and personal property transactions are received on a monthly basis. Documents relating to NIH's appropriated funds are received annually, although adjustments are made during the fiscal year as they occur.

The format of data input is:

- Appropriation authority (i.e., Allotment of Advice and Allotment of Allowance) on hardcopy documents from the Office of Assistant Secretary for Health.
- Procurement, supply, and service transactions (i.e., purchase orders) on hardcopy documents from the procurement offices within NIH.
- Inventory information from the Automated Materials Management System via magnetic tape.
- Written travel orders and training authorization documents from NIH organizational components.
- Grant and contract award documents from NIH organizational components.
- Payroll information on a magnetic tape from HHS's Central Payroll System.
- Cash advances to and expenditures by grantees and contractors on machine media files from the Departmental Federal Assistance Financing System (DFAFS).
- Supply and services transactions from the 14 systems of NIH's Service and Supply Fund on magnetic tape.
- Personal property transactions on hard copy documents from NIH's automated Personal Property System.

Several methods are used to transmit the input data. Hardcopy documents are sent by mail to NIH's Department of Financial Management. One NIH field office--the field office in Research Triangle Park, North Carolina--transmits transaction information by computer

terminal to NIH's Bethesda, Maryland, computer center. The information transmitted by computer terminal is stored on a magnetic disk file until it is needed for processing by CAS.

Documents containing information on procurement, supply, service, travel, training, and grant and contract award transactions are received and reviewed by staff in NIH's Division of Financial Management for completeness and are entered into the computer via on-line terminals for processing by CAS. The Department of Financial Management staff keys NIH Headquarters' transaction information on a daily basis. The CAS stores this information on a magnetic disk file for later processing.

Access to the CAS and its automated accounting files is controlled by a system of user passwords and transaction codes. User passwords identify individuals authorized to enter accounting information into the system and screen out unauthorized system users. Transaction codes limit the kinds of information that can be entered into the system. Based on a particular transaction code entered into the system, the CAS will ask/prompt the computer terminal operator for information the operator is authorized to input. Overall, CAS is designed to recognize about 368 transaction codes.

#### System processing

Transaction information is processed as it is received. For example, procurement, supply, service, travel, training, grant and contract award information is processed on a daily basis. Each night CAS processes transaction information received during the day. The first step in CAS processing is to produce a transaction file. To build this file, CAS consolidates the following files:

- The magnetic tape files of transactions created by the Division of Computer Research and Technology.
- The magnetic disk file of transactions created by the Department of Financial Management staff.
- The magnetic disk file of transactions created in NIH's field office in Research Triangle Park, North Carolina.

When the bi-weekly magnetic tape file is received from the central payroll system, the information on that file is also included on the merged transaction file discussed above. Similarly, when the monthly magnetic tape files are received from DFAPS, Materials Management System, and the 16 billing systems of NIH's Service and Supply Fund, the information on these magnetic tape files is also included on the merged transaction file previously discussed.

After CAS creates the daily transaction file, the information is edited for completeness and accuracy. CAS performs about 70 edit checks. These computer edit checks can be grouped into the following categories:

- Alpha/numeric edits check the reasonableness of information in a transaction. For example, alpha/numeric edits would check whether the second and third characters in a document name, identifying the originating procurement organization, are alphabetic or whether all characters in a requisition number were numeric.
- Relational edits test the accuracy of one item of information against a related item of information in a transaction. For example, for a procurement transaction, a relational edit check would be to determine if the effective date entered for a vendor authorization to deliver or perform was within the current fiscal year.
- Transaction verses reference file edits test the accuracy of information in a transaction in relation to standard items of information recorded in automated reference files. These reference files are discussed below in more detail.

CAS uses the following automated reference files to validate information in transaction records:

- Miscellaneous Code Description File provides a list of all valid codes of the system and the associated alphabetic descriptions. It is comprised of a set of tables which serve as edits of the input data. For example, this file includes a list of valid object class codes and common accounting number (CAN) tables providing a list of all CANS recognized by the system and a complete set of data elements associated with each CAN.
- Open Document File is an on-line file which contains all obligational documents--contracts, grants, purchase orders, and travel orders--which are classed "open" in the system, i.e. those documents for which final disbursement or other action has not been made. This file shows the status of commitments, obligations, and accruals which have not been fully disbursed.
- Allotment/Allowance Register File shows the unobligated balance for NIH's spending authority by organization. This file is used to validate the availability of funds.
- Indirect Cost File contains indirect costs (costs to NIH institutes to support grants).

Transactions which do not pass the above discussed edits are returned on a daily basis to the originator along with appropriate

error messages for correction and resubmission to CAS for reprocessing. In addition, CAS controls rejected transactions by recording them on an error suspense file. Specifically, only the segment of the transaction in error is rejected and is written to an error file. This data will remain on the error file until it has been corrected and reentered for processing. When a transaction is reentered into CAS and it passes all edits, it is compared with the error file. If the transaction has been corrected, it is removed from the error file and processed through the system.

After all transactions have been edited, CAS updates three accounting files; the general ledger, the allotment ledger and the detail transaction history file. The general ledger file contains all the general ledger accounts which reflect the assets, liabilities, government equity, expenses, and income for all NIH appropriations. This file is updated at least monthly. The allotment ledger file contains the status of funds and is used to preclude violations of the Anti-Deficiency Act. The detailed transaction history file contains a historical record of all valid accounting transactions.

#### System outputs

The Central Accounting System generates approximately 100 internal reports and about 7 external reports. The principal automated documents produced for accounting branches to use in reconciliation of accounts are the weekly report of detailed transactions (the "12" report) and the error listing. The "12" report provides the staff of the program and operating organizations with data to verify the processing of each transaction which relates to their organization. The error listings are returned after transaction processing from the Division of Computer Research and Technology (DCRT) to the Division of Financial Management accounting branches for correction and resubmission of transactions as necessary.

In addition to generating a series of periodic hardcopy reports, the system produces magnetic tapes as input into the following systems.

--DFAFS receives a tape which contains NIH grant obligations.

--Information for Management Planning Analysis and Coordination System (IMPAC) receives a tape of indirect costs for each research grant award and a tape of every external award and all interagency agreements.

--Vendor History System receives a tape of all partial and final disbursement transactions.

In addition to the above listed magnetic tape files, CAS produces a tape which is used by Treasury to issue disbursement checks--e.g., payments to vendors for goods and services received and travel advances.

Questionnaire results for the survey  
of accounting and ADP report recipients  
at NIH

In March 1983, the GAO sent a questionnaire to recipients of accounting and ADP reports generated by CAS. The survey involved three major issues: report usage, report accuracy and report timeliness. Of the 209 NIH respondents 156 (or 75 percent) reported that they used the reports; 2 (or 1 percent) did not use the reports; and 51 (or 24 percent) never received the reports. Of the 156 who used the reports, 152 (or 97 percent) found the reports to be both accurate and timely. Overall, the reports produced by CAS appear to be useful, accurate and timely.

Internal Control Strengths  
and Weaknesses

The internal controls in CAS generally appear adequate to ensure that accounting data entered is properly captured, recorded and reported. The internal control strengths are discussed below. To better understand how each system surveyed at NIH relates to the overall financial management structure see the flowchart in Appendix II. Appendix III discusses control objectives and the controls in place to meet these objectives along with system weaknesses if the objectives are not met.

The key internal control features included in NIH Central Accounting System are:

- User passwords and transaction codes that (1) identify individuals authorized to enter accounting information into the system and screen out unauthorized system users and (2) limit the kinds of information that can be posted to the system's files.
- Record counts for all documents in a batch showing both the number of documents to be processed and dollar total of transaction information in each batch, i.e. total dollars for all transactions. Batch control numbers, which include a date and two-digit identifier, are assigned to each batch.
- Computer edits of accounting transaction information sent in by computer terminals to verify the completeness, accuracy and validity of transaction information and to reject incomplete, inaccurate, and invalid transaction information.
- An automated error file of rejected transactions. This file contains all error transactions which were entered into the system and did not meet edit criteria.

## NIH'S FEEDER SYSTEMS

Besides CAS there are 19 feeder systems that process financial data that we included in our survey. These systems interface with the NIH's CAS, and their inputs, processing, outputs and internal control strengths and weaknesses are discussed below.

### Nonexpendable Personal Property System

The Nonexpendable Personal Property System maintains the personal property subsidiary ledger which accounts for and controls personal property at NIH. It maintains detailed property records on the cost, location and status of the property. The system is maintained by the Property Accountability Section of the Personal Property Branch, which is the central recordkeeping activity for all NIH-owned property which includes property in the possession of research contractors. Currently, the NIH nonexpendable inventory (typewriters, cameras, adding machines, desks) consists of approximately 101,000 items valued at \$275 million.

#### System inputs

The major input to the Property System is the information on purchase orders. The Accountability Section receives and screens each purchase order created by the Procurement Branch. The screening is performed to determine which documents contain nonexpendable property. These purchase orders are placed in a pending file until receipt of the requisitioned item. Then appropriate information is entered into the Property System by computer terminal. In addition, all property transaction documents (property dispositions, transfers, cost adjustments, results of boards of survey, etc.) are used to update the data base.

Controls over input data are similar to those utilized by CAS. The Property System has user passwords to control access to the system and it uses transaction codes to limit the information that can be entered and retrieved by the user.

#### System processing

As requisitioned items are received, an Accountability Section employee stationed in the property receiving area affixes a decal to the property which shows the item's serial number. The serial number is also recorded on a copy of the purchase requisition and forwarded to the Property Accountability Section, where the information is transferred to coding sheets and entered via terminal into the Property System, creating a property record. A terminal is also used daily to update the property records for property additions, deletions, and cost adjustments.

Processing controls within the Property System generally follow those previously described for CAS. Edit checks similar to those found in the CAS (alpha/numeric, relational, transaction verses reference file edits) are present in the Property System. However, the Property System does not maintain a file listing of rejected input data; thus, there is no automated control to ensure all rejected transactions are corrected and reentered into the system for reprocessing.

#### System outputs

The Property Accountability Section compiles statistical data and other property reports on a monthly, annual, and request basis for internal use. The Property Utilization Section of the Personal Property Branch uses the Property System to monitor the utilization and disposal of property throughout NIH. Excess property is reported to the PHS, the Department, and GSA. Also, various reports requested from PHS, the Department, GSA, the Congress are produced by the Property System.

#### Internal control strengths and weaknesses

Internal controls in the Nonexpendable Property System generally appear adequate to ensure that personal property transactions are accurately reentered into the system. Specific internal control strengths and weaknesses follows. The key internal features of the Property System are:

- User passwords and transaction codes (1) identify the individuals authorized to enter information into and retrieve information from the system, screening out unauthorized users and (2) limit the kinds of information that can be posted to the system's files.
- Computer edits verify the completeness and accuracy of property transactions and reject incomplete and inaccurate transactions.

The key internal control weakness is the absence of an automated rotating error file to ensure all rejected transactions are corrected and reentered into the system for reprocessing.

#### Administrative Data Base System

The Administrative Data Base System supports the procurement and supply processes. The system controls the requisition and receipt of goods and services and the establishment and payment of corresponding expenses. For fiscal 1982, the system controlled approximately \$139 million in expenditure authority. In addition, the system is used to respond to internal and external reporting requirements.

System inputs, processing, outputs and internal control strengths and weaknesses are discussed below.

### System inputs

Procurement and receiving data entered into NIH's Administrative Data Base System can be categorized as centralized or decentralized. In centralized data entry, data is entered via terminal from a central point. Centralized data entry covers NIH ordering offices that have not been given authority to enter their own procurement and receiving data. Decentralized data entry, covers NIH ordering offices that have the capability and authority to enter their own procurement and receiving data directly into the System.

### System processing

The work flow of centralized and decentralized ADP orders are slightly different. However, the order/receipt/payment process for goods and services will follow the same basic steps:

- The requisition or purchase order is prepared by the ordering office.
- The order is entered into the Administrative Data Base by the ordering office's administrative personnel or by the central procurement point.
- The order is received by the ordering office either directly or via shipping and receiving.
- The receipt is entered into the Administrative Data Base by the ordering office or by the central point.
- The vendor sends an invoice for the commodity or service.
- The Disbursing Services Section, Division of Financial Management verifies that NIH has actually received the ordered item or service and schedules payment transactions to Treasury for payment.

When goods and services are received, the ordering office enters the receiving data directly into the system via terminal, which generates an accounts payable transaction tape as daily input into CAS. Vouchers that are certified for payment are entered into the system via data entry by the Accounts Payable Section. A payment transaction tape is generated by the system and is entered into CAS on a daily basis to initiate payments.

### System outputs

The Administrative Data Base System generates a series of periodic hardcopy reports such as a Statistics Report,

Purchase Order Document Register, Procurements by Clerk ID Report, Requisition Weekly Report and Vendor Report. These reports are used to monitor the procurement of supplies. In addition, the system produces an accounts payable and a payment transaction tape for CAS.

#### Internal control strengths and weaknesses

Our survey of the NIH Administrative Data Base System did not disclose any obvious internal control weaknesses. The key internal control features of the system are:

- A security keylock feature which improves data processing security by locking the terminal and allowing only authorized operators (those issued keys) to operate them.
- User passwords for identifying individuals authorized to enter and retrieve information and for screening out unauthorized users.
- Computer edits of transactions to verify the completeness, accuracy and validity of transactions and to reject incomplete, inaccurate and invalid transactions.

#### Information for Management Planning Analysis and Coordination System (IMPAC)

The Information for Management Planning Analysis and Coordination System (IMPAC) maintains and reports information on NIH grants. For fiscal 1982 IMPAC accounted for \$3.2 billion of the \$4 billion NIH budget. The system's inputs, processing, outputs and internal control strengths and weaknesses are discussed below.

#### System inputs

Inputs to IMPAC are made on a daily and weekly basis. Daily, IMPAC receives input of data from research grant applications. Approximately 43,000 grant applications for NIH support are processed through the IMPAC system each year. The Statistics Analysis Branch enters data from the face and the budget pages of each application into IMPAC via terminal. That branch also enters the recommendations on the application's merit from the initial review groups and NIH Bureaus, Institutes and Divisions' into IMPAC. Weekly, IMPAC receives a magnetic tape of the costs of NIH institutes to support the grant programs (indirect costs) from CAS.

#### System processing

A list of applications and the recommendations on those applications is produced by IMPAC and sent to the appropriate institute (award unit) for award action. The grant management officer in the award unit then uses IMPAC to produce the award documentation which

is then authenticated. Copies of the award are sent to the Statistics Analysis Branch and to the Division of Financial Management. Daily, the Statistics Analysis Branch releases obligation transactions to CAS.

For the operation of the IMPAC system, the following files are required:

- Pending and Open Master Files are both stored on disks. The Pending file contains all records that are in the process of review prior to award or final action. The Open Master file contains all records of the current year and the past fiscal year on which awards were made or other final action has been taken.
- Institute Profile file is linked to the masterfile through an institution number when it is necessary to retrieve information related to NIH grantee institutions.
- Project Address file is linked to the masterfile during the review and award process to pick up the entity number and the addresses required in the preparation of the Notice of Grant Awards.
- Trainee file contains information on trainees appointed under NIH training grants and serves as the major source of data for reporting on the progress and status of the training grant program.
- History file is maintained on magnetic tape because of its size and infrequent use. It contains almost 400,000 records and periodically the open file is purged to the history file.

#### Systems outputs

Besides the award process information previously discussed, IMPAC produces a weekly, bi-weekly and monthly series of reports on awards made and active grants. The reports generated are in the form of listings, magnetic tape, and microfilm. The listings of statistical data used in the award process are made a part of the grant award review groups' minutes. Magnetic tapes of the IMPAC data base are prepared on a recurring basis and forwarded to the appropriate awarding unit for additional processing unique to the awarding unit's requirements. Other organizations which routinely receive IMPAC tapes are: (1) Office of Grants and Procurement Management and (2) the Office of the Assistant Secretary for Health. Microfilm of the data base is maintained by the Project Control Section, Referral Branch. This branch uses the microfilm to determine if an applicant has any current applications or any current grant support.

In addition, each night IMPAC releases to CAS obligation transactions in machine media form (a magnetic disc file) which

includes data such as dollars,CAN, object class, etc. A hardcopy document of this data is also sent to the Division of Financial Management.

#### Internal control strengths and weaknesses

IMPAC authorizes grant awards but does not record or control cash drawdowns by grantees or grantee expenditure reports. The Departmental Federal Assistance Financing System records and controls grantee cash drawdowns and expenditure reports. Therefore, the management of cash advances to grantees is not under the full control of NIH.

#### Service and supply fund

The NIH Service and Supply Fund uses 16 systems to bill the cost of services and supplies provided to NIH's Institutes and Research Divisions. The 16 automated systems are described below.

##### --Shops Stores Billing System

The Shops Stores Billing System is an automated system operated by the Division of Engineering Services. This Division has responsibility for NIH-wide facilities management programs, which provide engineering, craft, and labor services in the operation and maintenance of the NIH building and grounds.

The system maintains an inventory of all material issued for use by the Division on the various facility maintenance jobs it performs. The system bills the appropriate Institute, Division, etc., for incurred cost. Total billings for fiscal 1982 were approximately \$6.6 million.

##### --Supply Operations Branch

The Supply Operations Branch Billing System is an automated system which handles the sale, distribution and billing of items at NIH's four self-service stores. The various NIH activities can obtain items from the self-service stores by submitting an NIH internal form to the Supply Operations Branch Data Processing Section or by direct purchase from the self-service stores using an NIH credit card. Total sales in fiscal 1982 were about \$21 million.

##### --Postal Service Billing Systems

The Postal Services Billing System is a part of the Supply Operations Branch Billing System. This system is used to charge postal expenses to the various users. Billings under this system are included in the \$21 million above.

--Personal Property Billing System

The Personal Property Billing System is an automated system to bill for personal property acquired by the various institutes and Departments. The system had billings of about \$800,000 in fiscal 1982.

--DCRT Project Accounting System

The Division of Computer Research and Technology (DCRT) Project Accounting System is an automated system which records and bills the charges for computer services provided to internal and external NIH customers. For operation of this system, a master file and history file are used. During fiscal 1982, billings were about \$32.5 million.

--BEIB Billing System

The Biomedical Engineering and Instrumentation Branch Billing System is an automated system designed to assist management in the daily control of the stock inventory and the charges incurred in the repair of medical equipment for the various activities. Total billing in fiscal 1982 were over \$4 million.

--Design Billing System

The Design Billing System is maintained and operated by the Division of Research Services. The system bills NIH Bureaus, Institutes, and Divisions for design services provided, such as cover designs for booklets and pamphlets and brochure and movie title designs. During fiscal 1982 billings totaled about \$1 million.

--Glassware and Graphic Billing Systems

The Glassware and Graphic Billing systems are separate systems which operate similar to the Design Billing System. The Glassware System is operated by the Division of Safety. The Graphics System is operated by the Division of Research Services. Each system bills appropriate NIH activities for services provided. During fiscal 1982 the Glassware system had billings of about \$800,000 and the Graphic system had billings of about \$2 million.

--Large Research Animals Billing System

The Large Research Animals Billing System is primarily a manual system that bills various institutes for their use of large research animal services. The system is maintained and operated by the Central Services Accounting Branch. The Branch does not have any documentation available on the system. Billings for fiscal 1982 were about \$2.4 million.

--Photography Billing System

The Photography Billing System is an automated system that provides accountability for photography products issued to various NIH activities and bills them for services provided. Total billings for fiscal 1983 were about \$1.2 million.

--Printing and Reproduction Billing System

The Printing and Reproduction Billing System is an automated system that bills NIH institutes and offices for services provided them by the Printing and Reproduction Branch. For fiscal 1982 the system recorded total billings of about \$12.5 million.

--Scientific Equipment Rental Billing System and Small Animal Billing System

The Scientific Equipment Rental Billing System and the Small Animal Billing System are similar to the Design Billing System. The Scientific Equipment Rental and the Small Animal Billing systems are operated by the Division of Research Services and each system bills appropriate NIH activities for services provided. During fiscal 1982 the Scientific Equipment Rental system had billings of about \$1.1 million and the Small Animal system had billings of about \$4 million.

--Tissue Culture and Bacteriological Media Billing System

The Tissue Culture and Bacteriological Media Billing System is a manual system that bills NIH activities for tissue culture media services. For FY 82, total billings were about \$1.28 million. At the present, no documentation exists for this system.

--Procurement Branch Billing System

The Procurement Branch Billing System is an automated system used to record the cost to process procurement orders. During fiscal 1982, total billings were about \$5 million.

Subsystem's Inputs,  
Processing and Outputs

Each of the 14 automated billing systems of the Service and Supply Fund function in a similar manner. A work request or a supply request is received by NIH's Service and Supply Fund from the NIH organization ordering the goods or services. Detailed information on the work or supply request is recorded in the appropriate billing system via terminal. The type, quantity and cost of materials, labor expense, and the user are all entered into

the systems. Fourteen of the sixteen systems accumulate the various user charges and consolidate this information into a magnetic tape. Magnetic tapes of charges are then forwarded, on a monthly basis, to CAS for updating the general ledger accounts. Two billing systems, the Large Research Animals Billing System and the Tissue Culture Billing System, use the Division of Computer Research and Technology to prepare reports for the services and supplies provided. However, inputs into CAS are manually prepared using hard copy documents.

#### Internal control strengths and weaknesses

Internal controls in the sub-systems discussed above did not appear adequate to ensure accurate processing and reporting of transaction data. Internal control strengths and weaknesses follows.

Internal control strengths are:

- User passwords and transaction codes that (1) identify individuals authorized to enter transactions into the system, screening out unauthorized users and (2) limit the kinds of information that can be posted to each of the systems' files.
- Computer edits of transaction information that verify the completeness, accuracy and validity of transactions and reject incomplete, inaccurate and invalid transaction information.

Internal control weaknesses are:

- The Large Research Animals and Tissue Culture Billing Systems are manual systems which do not have any documentation. Current procedures do not ensure that accurate data is used consistently throughout the billing process.
- The Photography and Printing and Reproduction Billing Systems do not maintain a rotating error file, which means that there is no automated assurance that all data rejected by computer edits are corrected and reentered into the systems for reprocessing.

#### OTHER CONCERNS

In addition to the various financial management systems discussed in this report, our survey disclosed two other areas of concern. The first is the drug inventory systems--the Perpetual Drug Inventory and the Clinical Drug Inventory Systems--used by NIH to control the distribution of drugs within NIH. The other area of concern is the safeguards in place to protect the Department's computer equipment that is used to operate CAS. Neither of these

areas were reviewed during this effort, due to time and staffing constraints.

The Perpetual Drug Inventory System is a manual system which controls the distribution of drugs which are administered to patients within the NIH Clinical Center. The Clinical Drug Inventory System controls the drugs used for all cancer research. The Perpetual System monitors approximately \$3 million worth of drugs, while the Clinical Systems controls \$2 million. These systems represent areas of major risk to NIH and thus merit special concern due to the nature of the products they control.

The other area of concern is the safeguards over computer equipment used to operate CAS. Access to any system is based on the availability of the system's passwords and the user's manual, which is why both should be under tight security. Because of the number of computers used in connection with CAS, it was impracticable to include them in our survey. However, we feel that this area along with the drug inventory systems should both be considered for a future review.

#### SYSTEM DEVELOPMENT EFFORTS

In 1977, NIH made a major decision to undertake the design and implementation of an Administrative "Data Base" system. It was further decided to operate the system under the IBM Information Management System based software. The following factors were a major influence on the NIH decision:

- the Secretary of HHS directed that several management improvement initiatives be put into effect: vendor payments, debt management, and a general upgrading in the accuracy and timeliness of accounting data and systems,
- pressure from vendors to improve voucher payment efficiency which resulted in the Prompt Payment Act, and
- the NIH management's interest in effecting overall improvements in the administrative management process.

It was the judgement of NIH management that the problems which existed could not be corrected by focusing on just the accounting system, but required a concentrated effort on the general upgrading of the total administrative process, including the accounting system.

The current NIH accounting system is a batch oriented system which is being converted to the Administrative Data Base to improve the operating efficiency of the accounting system. Expected results are to:

- eliminate redundant systems and processing;
- eliminate paperwork;
- reduce administrative costs;
- increase the accuracy and timeliness of all administrative data including accounting data;
- support other Departmental information and system needs; and
- bring together into one single system all operational and resources management data necessary for management decisions.

The procurement, receiving and accounts payable systems are fully operational. The programming phase of this project was completed on August 1, 1983. During this phase, all the system's programs were coded and tested. System documentation was completed on September 30, 1983.

In addition, the Perpetual Drug Inventory and the Supply Operations Branch Billing Systems were included as an operational part of the Administrative Data Base System in October 1983. The Supply Operations Branch Billing System will be replaced by the Inventory Management System of the Administrative Data Base. The Tissue Culture and Bacteriological Media Billing System and the Large Research Animals Billing System will also be automated.

OBJECTIVES, SCOPE, AND METHODOLOGY

This survey treated the National Institutes of Health as a financial entity and focused on identifying its financial management structure, related systems, and the internal control strengths and weaknesses in these systems. The survey applied GAO's Controls and Risk Evaluation (CARE) audit approach.

SURVEY OBJECTIVES

Our survey objectives were to (1) document all manual and automated systems at the National Institutes of Health that process financial transactions from the time they are authorized through final reporting of these transactions in internal and external reports, (2) identify the relationships between these systems, that is, the flow of information between different systems, and (3) identify and document internal control strengths and weaknesses in the financial systems.

SURVEY SCOPE

This survey viewed the National Institutes of Health as a single financial entity. Therefore, we identified and surveyed the financial management systems in the various organizational components of the office. Survey work was performed at the National Institutes of Health, Bethesda, Maryland.

We documented the financial management systems in operation and identified, based on available system documentation and through discussions with agency accounting, ADP systems, program officials, and review of prior GAO, Inspector General and special system study group reports, the internal control strengths and weaknesses in these systems. We did not perform any tests of system operations or actual financial information and transactions. The following sections present the definitions of a financial management system, internal control, and an agency system of internal control used in this survey.

DEFINITION OF A FINANCIAL  
MANAGEMENT SYSTEM

In consonance with GAO's Policy and Procedures Manual for Guidance for Federal Agencies (Titles 2 through 8), we defined a financial management system for this survey, as the manual and/or automated systems that capture, record, summarize, and/or report financial and related quantitative information related to the:

- Authorization of the use of resources.
- Management of liabilities.
- Receipt of revenue.
- Disbursement of funds.

- Control of assets.
- Control of appropriated funds.
- Development and issuance of reports on the financial status of assets, liabilities, and appropriated funds and the financial results of program and administrative operations.

In an April 18, 1983, letter to the heads of Departments and Agencies, the Comptroller General announced changes to GAO's procedures for approving agency accounting systems. In this letter, the Comptroller General reiterated the definition of an accounting systems in GAO Policy and Procedures Manual for Guidance of Federal Agencies.

#### DEFINITION OF INTERNAL CONTROLS

On June 16, 1983, the Comptroller General issued the standards for internal controls in the federal government to be followed by agencies in establishing and maintaining systems of internal controls. The standards define systems of internal control as

"The plan of organization and methods and procedures adopted by management to ensure that resource use is consistent with laws, regulations, and policies; that resources are safeguarded against waste, loss, and misuse; and that reliable data are obtained, maintained, and fairly disclosed in reports."

Processing procedures are those manual and/or automated procedures that govern capturing, recording, processing, summarizing, and reporting of financial and related quantitative information. Internal control procedures and independent procedures provide evidence that processing procedures have, in fact, been followed.

#### DEFINITION OF AN AGENCY'S SYSTEM OF INTERNAL CONTROL

Most agencies operate several financial management systems that process different types of financial transactions and provide information to each other. The individual financial management systems--taken together--form the agency's overall financial accounting, control, and reporting system. For example, most agencies have a general ledger/administrative control of funds system, and a subsidiary system that, for example, process transactions relating to personnel/payroll actions, personal property, disbursements, receipts, loans, accounts receivable, and accounts payable. These systems--taken together--are the agency's overall financial accounting, control, and reporting system.

The financial management systems that make up an agency's overall financial accounting, control, and reporting system include both processing procedures and independent internal control procedures, as defined in the preceding two sections. For this survey, we defined an agency's system of internal control as all the internal control procedures--taken together--that are included

in all the financial management systems that comprise the overall financial accounting, control, and reporting system.

NATIONAL INSTITUTES OF HEALTH  
FINANCIAL MANAGEMENT SYSTEMS  
INCLUDED IN OUR SURVEY

Based on the foregoing definitions, we included in our survey the major manual and automated systems at the National Institutes of Health that:

- Maintain general ledger accounts and produce financial reports.
- Control appropriated funds.
- Validate information from subsidiary financial management systems that feed information to general ledger systems.
- Determine eligibility for, and authorize the making of, payments to vendors.
- Authorize acquisition of resources.
- Record and account for assets and liabilities.

SURVEY METHODOLOGY

Our survey followed the requirements of GAO's CARE survey approach. Accordingly, our survey included identification and documentation of the:

- Organizational structure and major organizational components and the mission of each component.
- Accounting and related financial management systems, as previously discussed, and the interrelationships between these systems.
- Internal control strengths and weaknesses in the systems based on the internal control strengths and weaknesses identified during the survey.

In consonance with the CARE audit approach our work entailed identification and documentation of the operations and related internal control strengths and weaknesses of the financial management systems based on (1) available agency system documentation, (2) discussions with cognizant agency accounting, program, and ADP systems officials, and (3) prior issued GAO, Inspector General, and special study group reports. Our survey was made in accordance with our current "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions, except that no tests were performed of system operations or of information processed by and recorded in these systems.



NATIONAL INSTITUTES OF HEALTH--ASSET AND LIABILITY MANAGEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Authorization

1. Sources of assets and liabilities should be authorized in accordance with laws, regulations and management's policy.

Supplies-MMS (including drugs)

Obligated transactions are created during the initial entry of purchase orders. The accounting section is responsible for certifying the availability of funds for obligation transactions.

Property

When purchase orders are received from the Procurement office, the Property Accountability Unit screens each purchase order to determine which contain nonexpendable property.

Advances

Grant applications are reviewed by an advisory council and initial review group for relevancy before they are approved.

2. The amounts, timing and conditions of transactions should be authorized in accordance with laws, regulations and management's policy.

See cycle control objective 1.

Supplies

When received and entered into the data base an accounts payable is generated. A clerk in the Accounts Payable Section matches the purchase order data in the system with the invoice. If payable, a payment transaction is generated as input into the accounting system.

3. The amounts, timing and conditions of expenditures of funds should be authorized in accordance with laws, regulations and management's policy.

Property

When property is received, an accountability section employee stationed in the supply operations branch receiving area offices affixes a numerical decal and cites other identifying information on the purchase order. These documents are forwarded to the Property Accountability Section where they are entered into the system creating a property record. Each month copies of all property transactions affecting the general ledger are forwarded to the Division of Financial Management.

NIH does not have one system to control cash advances to contractors and grantees. The NIH IMPAC system authorizes grant awards and the Office of Secretary's DFAPS makes award payment. NIH has no assurance that all expenditures are reported.

NATIONAL INSTITUTES OF HEALTH--ASSET AND LIABILITY MANAGEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

4. Adjustments to asset and liability accounts and account distributions should be authorized in accordance with management's policy.
5. Asset and liability management procedures should be established and maintained in accordance with management's policy.

See cycle control objective 3.

See cycle control objectives 1, 2, and 3.

Economy, Efficiency and Effectiveness

6. Cycle results should be in accordance with laws, regulations and management's policy and plans.
7. Cycle results should be achieved in an economical and efficient manner.
8. Processing procedures used to create, recognize and report events and related transactions should be economical and efficient.
9. Only those requests to buy or sell assets that meet laws, regulations and management's policy should be approved.
10. Assets and liabilities acquired should be accurately and promptly reported.
11. Retirements or dispositions of assets to outsiders should be accurately and promptly reported.

The NIH Material Management System, Property System and IMPAC system all automatically generate a series of hardcopy reports for management's use. Also a standard chart of accounts is maintained for the Central Accounting System.

See control objectives 1, 2, 3, and 6.

See objectives 1, 2, 3, and 6. An administrative data base is used to process transactions relating to the acquisition of goods and services (including drugs).

The buying, selling, transferring and disposal of assets is documented in the Unexpendable Personal Property System documentation and the Materials Management User's Guide.

See control objectives 1, 3, and 6. Periodic physical inventories are taken of personal property and drugs.

See control objective 9. Periodic physical inventories are taken of personal property.

The Perpetual Drug inventory system at NIH accounts for about 1800 items amounting to \$3 million annually. This is a manual system, however, automation plans are underway. Also, two of the sixteen NIH billing systems are manual.

See cycle control objective 3.

NATIONAL INSTITUTES OF HEALTH--ASSET AND LIABILITY MANAGEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

<u>Cycle Control Objectives</u>	<u>Controls in Place</u>	<u>Control Weaknesses</u>
12. Amounts due from or to purchasers and creditors, and the accounting distribution of those amounts, should be computed accurately and promptly recognized as assets or liabilities.	See control objectives 3 and 6. Administrative data base system is used to process transactions.	
13. Changes in values should, where required by generally accepted governmental accounting principles, be computed accurately and recognized promptly.	See control objectives 3 and 6.	
<u>Classification</u>		
14. Amounts due to creditors, and related adjustments, should be accurately and promptly classified, summarized and reported.	See control objectives 3 and 6.	
15. Purchases and sales of assets, changes in liabilities and related adjustments should be accurately applied to the proper subsidiary accounts.	See control objectives 1, 3, and 6.	
16. Journal entries for assets and liabilities acquired and retired, and related adjustments, should be prepared and posted each accounting period.	See control objectives 3 and 6.	
17. Journal entires should summarize and classify economic activities in accordance with management's plan.	See control objectives 3 and 6.	

NATIONAL INSTITUTES OF HEALTH--ASSET AND LIABILITY MANAGEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Control Weaknesses

Controls In Place

Cycle Control Objectives

Substantiation and Evaluation

- 18. Recorded balances of asset and liability accounts, and related transaction activity, should be periodically substantiated and evaluated.

Property

Property records are periodically reconciled with accounting records.

Advances

Weekly, all calculations of indirect costs to new awards or adjustments of indirect costs to prior awards within the CAS are mechanically transferred to IMPAC and recorded on a grant-by-grant basis. This weekly transfer process permits the reconciliation of current fiscal year obligations in each system.

Physical Safeguards

- 19. Physical security safeguards should be maintained where assets are stored and transactions processed.

Not surveyed.

NATIONAL INSTITUTES OF HEALTH--PROCUREMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Authorization

1. Vendors should be authorized in accordance with laws, regulations and management's policy.
2. The types, estimated quantities, and prices and terms of goods and services needed should be authorized in accordance with laws, regulations and management's policy.
3. Adjustments should be authorized in accordance with laws, regulations and management's policy.
4. Procurement cycle processing procedures should be established and maintained in accordance with laws, regulations and management's policy.

The Reports and Accounts Control Branch, DFM maintains an on-line characteristics (vendor) file with the name and address of all vendors and persons that NIH does business with. Each day the Accounts Payable Section receives an alphabetical listing of this file. It is the duty of this Section to record the correct number to each payment by the Branch.

The requestor for goods and services prepares a requisition which is submitted to the purchasing agent. The procurement clerk enters this data into the data base and a purchase order is generated.

Adjustments are supported by documents. Unexplained losses are fully documented and reported to the Board of Survey, for consideration and disposition.

The Materials Management Users Guide documents the procurement cycle processing procedures.

## Economy, Efficiency and Effectiveness

5. Procurement cycle operations should be in accordance with laws, regulations and management's policy and plans.

Data base management system used to process transaction.

NATIONAL INSTITUTES OF HEALTH--PROCUREMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

6. Procurements should be achieved in an economical and efficient manner.
7. Procurement procedures used should be economical and efficient.

Data base management system is used for the procurement process.

Data base management system used to process transactions.

Transaction Processing

8. Only those requests of vendors for goods or services that meet management's criteria should be approved.
9. Only requested goods and services should be accepted.
10. Goods and services accepted should be accurately and promptly reported.
11. Amounts due to vendors for goods and services accepted, and the accounting distributions of such amounts, should be computed and recognized as liabilities promptly.

See objective 1.

When goods are received, the receiving clerk in the receiving location will reconcile the purchase order with the receiving report. The delegated receiving officer keys receipt of goods into the data base.

When goods and services are received, the receipt is keyed into the data base at the receiving location.

When goods are purchased, the procurement clerk types data into the data base which generates an obligation and a purchase order. When received and entered into the data base an accounts payable is generated.

NATIONAL INSTITUTES OF HEALTH--PROCUREMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

- |  |  |  |
|--|--|--|
| 12. Amounts due to vendors should be accurately and promptly classified, summarized and reported.                      | The Operations Accounting Branch provides the Procurement Section with a definition or description of each object class. Procurement determines which object class an order should have before ordering items. The Accounting Classification Section validates the object class and has authority to change if necessary. This section receives a listing of each obligation in the data base. |  |
| 13. Purchasing adjustments should be accurately and promptly classified, summarized and reported.                      | See Objective 12.  |  |
| 14. Liabilities incurred, and related adjustments, should be accurately applied to the proper vendors' accounts.       | See Objective 1.   |  |
| 15. Journal entries for amounts due to vendors and related adjustments should be prepared each accounting period.      | Written chart of accounts containing a description of each account.  |  |
| 16. Purchasing journal entries should summarize and classify economic activities in accordance with management's plan. | Not surveyed.  |  |

Substantiation and Evaluation

- |  |                  |  |
|--|------------------|--|
| 17. Recorded balances of accounts payable, and related transaction activity, should be periodically substantiated and evaluated. | See objective 2. |  |
|--|------------------|--|

NATIONAL INSTITUTES OF HEALTH--PROCUREMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control Objectives

Controls in Place

Control Weaknesses

Physical Safeguards

18. Access to purchasing, receiving and disbursement records, critical forms; processing areas, and processing procedures should be permitted only in accordance with management's criteria.

There is a restriction of access to terminals which generates disbursement transactions.

NATIONAL INSTITUTES OF HEALTH--GRANT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Authorization

- |  |               |
|--|---------------|
| 1. Grant eligibility requirements should be authorized in accordance with laws, regulations and management's policy.   | Not surveyed. |
| 2. Information and method used to publicize the program should be authorized in accordance with laws, regulations and management's policy.                         | Not surveyed. |
| 3. Grant application processing procedures should be established and maintained in accordance with laws, regulations and management's policy.                      | Not surveyed. |
| 4. Grantee procedures for control, use and reporting of grant funded operations should be authorized in accordance with laws, regulations and management's policy. | Not surveyed. |

## Economy, Efficiency and Effectiveness

- |  |               |
|--|---------------|
| 5. Grant program results should be in accordance with laws, regulations and management's policy and plans. | Not surveyed. |
|--|---------------|

NATIONAL INSTITUTES OF HEALTH-GRANT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

- |  |               |  |
|--|---------------|--|
| 6. Program results should be achieved in an economical and efficient manner.   | Not surveyed. |  |
| 7. Procedures used to review, process and report grants and related transactions should be economical and efficient. | Not surveyed. |  |

Transaction Processing

- |   |  |   |
|---|--|---|
| 8. Only those grant requests that meet the eligibility requirements should be approved.   | All grant applications are reviewed by initial review groups and an advisory council to determine if they are relevant and should be approved. |   |
| 9. Resources (personnel, supplies and overhead costs) incurred for grant processing should be accurately and promptly reported. |  | NIH does not have control over cash advances to contractors' and grantees' foreign awards. The NIH IMPAC system through DFAPS authorizes grant award while the OS DFAPS makes award payments. |
| 10. Grants issued should be accurately and promptly reported.   | See objective 9.   |   |
| 11. Resources used, program results and related adjustments should be accurately applied to the proper records.                 | Not surveyed.  |   |

Classification

- |  |               |  |
|--|---------------|--|
| 12. Grants and costs of processing should be summarized each period and classified in accordance with management's policy. | Not surveyed. |  |
|--|---------------|--|

NATIONAL INSTITUTES OF HEALTH--GRANT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEARNESSES

Cycle Control Objectives

Controls in Place

Control Weaknesses

13. Reports should be prepared accurately, promptly and on a consistent basis that adequately presents the information they purport to display.

The IMPAC system automatically generates a series of hardcopy reports.

Substantiation and Evaluation

14. Recorded data should be periodically substantiated and evaluated.

Not surveyed.

15. The distribution of costs to accounts should be periodically reviewed and evaluated.

Not surveyed.

16. Grantee records should be periodically substantiated and evaluated.

Not surveyed.

Physical Safeguards

17. Access to grant and cost accounting records, critical forms, processing areas and processing procedures should be permitted only in accordance with management's policy.

Not surveyed.

NATIONAL INSTITUTES OF HEALTH-OTHER DISBURSEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Authorization

1. Disbursements should be authorized in accordance with laws, regulations and management's policy.
2. Adjustments to disbursements and accounts distributions should be authorized in accordance with laws, regulations and management's policy.
3. Disbursement processing procedures should be established and maintained in accordance with laws, regulations and management's policy.

The Reports and Accounts Control Branch maintains a vendor file for all vendors including proper EINS, and addresses.

Authorized personnel make a manual check of invoices for adjustments. The only adjustments on an invoice should be for freight charges. **These charges should be documented on the invoices and stamped.** Because disbursements are part of the data base, the system will not allow payment above what's on the authorized order.

Disbursement processing procedures are documented in the Materials Management User's Guide for the clerks use.

## Economy, Efficiency and Effectiveness

4. Disbursement cycle results should be in accordance with laws regulations and management's policy and plans.
5. Disbursements should be made in an economical and efficient manner.
6. Disbursement processing procedures used to create, recognize and report events and related transactions should be economical and efficient.

Turn-around time analysis of payments are made. **Also** there are inhouse analysis of the cost to process transactions. Workload reports are produced.

See objective 5.

Data base management system used to process transactions.

NATIONAL INSTITUTES OF HEALTH-OTHER DISBURSEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Transaction Processing

- |   |   |
|---|---|
| 7. Only those requests for disbursements that meet management's policy should be approved.  | The Reports and Accounts Control Branch, DFM maintains an on-line characteristics (vendor) file with the name and address of all vendors and persons that NIH does business with. Each day the Accounts Payable Section receives an alphabetical listing of this file. <b>It is the duty of this Section to record the correct number to each payment by the Branch.</b><br>See objective 1.  |
| 8. Disbursements should be accurately and promptly reported.  | The Central Accounting System produces a number of reports on the results of processing transactions which are sent to all levels of management. <b>One such report is the "12" report.</b> This is a report of every transaction processed for the week.   |
| 9. Amounts due to vendors for goods and services accepted, and the accounting distributions of such amounts, should be computed and recognized as liabilities promptly. | When purchasing goods, the Procurement clerk types data into the data base which generates an obligation and a purchase order. When goods are received, the receiving sections key in the receipts to the data base generating an accounts payable.   |
| 10. Each disbursement of cash should be based upon a recognized liability, be accurately prepared and be appropriately authorized.                                      | Once goods are received, the procurement officer matches the receiving report with his copy of the P/O. At the delegated receiving office, the delegated officer will enter into the terminal what was received and the date of receipt. The invoices are mailed directly to the Accounts Payable Section. <b>A clerk in this Section</b> will enter into the terminal, an invoice number, P/O number from their copy of the P/O, invoice date and invoice total. The computer will indicate only those lines on the P/O that are payable. The clerk will actually check the screen against the hardcopy invoice. If payable, a disbursement transaction is generated into the Central Accounting System. |
| 11. Disbursements should be accurately and promptly classified, summarized and reported.  | See objective 9.  |

NATIONAL INSTITUTES OF HEALTH--OTHER DISBURSEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Classification

- |  |  |  |
|--|--|--|
| 12. Cash disbursements and related adjustments should be accurately and promptly classified, summarized and reported.              | See objective 11.  |  |
| 13. Liabilities incurred, cash disbursements and related adjustments should be accurately applied to the proper vendors' accounts. | See objective 7.   |  |
| 14. Transactions for amounts due to vendors, cash disbursements and related adjustments should be prepared each period.            | Chart of accounts.   |  |
| 15. Disbursements should be summarized and classified in accordance with management's plan.  | See Objective 11.<br>CAS generates a subobject class Report which shows how much has been disbursed for each object class. |  |

## Substantiation and Evaluation

- |   |  |  |
|---|--|--|
| 16. Recorded balances of disbursements, and related transaction activity, should be periodically substantiated and evaluated. | Disbursements are reconciled monthly with both the 101 disbursing funds general ledger account series and the Agency Statement of Transactions, SF-224. Each transaction processed is printed out on a weekly detail transaction report ("12" report). This report is distributed to DFM accounting branches and NIH institutes and offices. |  |
|---|--|--|

NATIONAL INSTITUTES OF HEALTH-OTHER DISBURSEMENT CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control Objectives

Controls in Place

Control Weaknesses

Physical Safeguards

17. Access to disbursement records, critical forms, processing areas and processing procedures should be permitted only in accordance with management's policy.
18. Access to purchasing, receiving and disbursement records, critical forms; processing areas, and processing procedures should be permitted only in accordance with management's criteria.

Because disbursements are part of the data base, there are no hardcopy records of disbursements. The only terminals for generating disbursements are in the Accounts Payable Section, this is the only section with the ability to use key words and ID's to generate a disbursement transaction. There is only one terminal for deleting a payment. It is located in the Disbursing Services Section. Everyone can query the system, but not everyone can generate specific data.

There is a restriction of access to terminals which generate disbursement transactions.

NATIONAL INSTITUTES OF HEALTH-REPORTING CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control ObjectivesControls in PlaceControl Weaknesses

## Authorization

1. Data entered to reporting systems should be authorized in accordance with laws, regulations and management's policy.
2. Reporting system processing procedures should be established and maintained in accordance with laws, regulations and management's policy.

The NIH Central Accounting System is an automated system which utilizes a standard chart of accounts.

The Central Accounting System generates various reports monthly and annually on the status of funds and the G/L account balances.

## Economy, Efficiency and Effectiveness

3. Reporting should be in accordance with laws, regulations and management's policy and plans.
4. Reporting should be achieved in an economical and efficient manner.

See cycle control objective 2.

Not surveyed.

NATIONAL INSTITUTES OF HEALTH-REPORTING CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

<u>Cycle Control Objectives</u>	<u>Controls in Place</u>	<u>Control Weaknesses</u>
5. Reporting procedures used should be economical and efficient.	Not surveyed.	
<u>Transaction Processing</u>		
6. Only those reports that meet management's policy should be approved.	As a result of the user satisfaction questionnaire we found that 156 of the 209 users of management reports generated by the NIH Central Accounting System actually use the reports.	
7. Reports should be prepared accurately and promptly.	Of the 156 users of NIH management reports, 152 or 97 percent reported all or most of the information in the reports as being accurate.	
8. Relevant disclosure data should be gathered accurately and promptly.	See objectives 2 & 7.	
9. Relevant disclosure data should be accurately summarized and reported.	See cycle control objectives 2 and 7. Also, the CAS utilizes the CAN and the standard chart of accounts to accurately summarize and report data. Internal edit checks such as the common accounting number file are used to edit transactions for valid CAN. If the CAN is invalid the transaction is rejected by the System and is printed out on a rotating error file.	
10. File and account balances should be accurately and promptly reported.	The data base management system used to process transactions.	
11. Consolidation of reports should be accomplished accurately and promptly.	See objectives 1, 2 & 7.	
<u>Classification</u>		
12. Reporting entries should classify activities in accordance with management's plan.	See objectives 1 and 2.	

NATIONAL INSTITUTES OF HEALTH-REPORTING CYCLE  
INTERNAL CONTROL STRENGTHS AND WEAKNESSES

Cycle Control Objectives

Controls in Place

Control Weaknesses

13. Reports should be prepared accurately and promptly, be prepared on consistent bases and fairly present the information they purport to display.

See cycle control objectives 1, 2 and 7.

Substantiation and Evaluation

14. Recorded balances in the records should be periodically substantiated and evaluated.

Not surveyed.

Comprehensive audit of the Central Accounting System has not been performed.

Physical Safeguards

15. Access to records, critical forms, processing areas and processing procedures should be permitted only in accordance with management's policy.

Not surveyed.

NIH SYSTEMS NOT REVIEWED

Management Systems for Program Analysis and Evaluation  
NIAMDD Grants Program  
NIDR Research Projects Management System  
Program Information System  
United Computing System  
NIGMS Grants and Awards File  
NICHD Grants and Contracts Systems  
Administrative Information Management System  
NIA Data Reporting and Evaluation System  
DRR Management Information System  
SOB Revolving Fund Program Maintenance and Production  
Facilities Cost Accounting System  
Survey of Graduate Science Student Support  
Reporting to DHEW Obligations to Institutes of Higher Education  
Organization  
Federal Survey of Health R&D Obligations  
Personnel Data System/Terminal Data Collection Service  
Automated Retrieval of Manpower Statistics System  
National Cancer Program/Management Information System  
Contract Management System  
Drug Distribution and Protocol Monitoring System  
DCT Budget Management System  
BCB Data Management  
Financial and Accounting Analysis  
Budget Formulation and Presentation Support System  
NHLBI National Plan Implementation

NHLBI Information System  
NIEHS Warehouse Inventory System  
NIEHS Budget Reporting System  
Automated Budget Formulation System  
Contract Data Collection Program  
Indefinite Delivery Contract Program (Wylbur)  
Time and Attendance and Flowback Data From HEW Central Payroll  
System  
Perpetual Drug Inventory System  
Clinical Drug Inventory System  
DRR Management Information System  
NCI Personnel Data System  
NCI Grant Supported Literature System  
Grant Elements Network--Internal Users Systems  
NCAB Action Letters System  
NIDR Personnel Management Systems  
ARMS System



## DEPARTMENT OF HEALTH &amp; HUMAN SERVICES

Public Health Service  
National Institute of Health

## Memo

Date SEP 1 1983

From Chief, Central Services Accounting Branch, DFM

Subject Review of the General Accounting Office (GAO) Draft Report on NIH's Financial Management Structure<sup>1/</sup>

To Assistant Director for Finance, DFM

I have reviewed the portion of the GAO report dealing with NIH's Financial Management Structure as it relates to the NIH Service and Supply Fund and have the following comments:

The various Service and Supply Fund billing systems are not used to "control services and supply costs incurred by NIH organizations" as indicated in the report. The billing systems are basically cost allocation systems based on predetermined prices, labor distributions or priced requisitions.

GAO Note: This comment did not result in a change to the technical summary.

Also, the report excludes the Procurement Branch billing system, thus there are 16 billing systems instead of 15. Also, only the Large Research Animal billing system is manual and only partially manual. All animal issues and Carnivore Unit holding days have been automated. Programming for automating the other holding day billings has begun. In addition, the Tissue Culture and Bacteriological Media billing system was being automated at the time of GAO's review and is currently operational.

GAO Note: This comment resulted in a change to the summary. See pages 5 and 21.

The Glassware/Cage Washing billing system is operated by the Division of Safety and not the Division of Research Services as indicated in the report.

GAO Note: This comment resulted in a change to the summary. See page 17.

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<sup>1/</sup>Agency comments were based on a review of a draft of the technical summary, and as a consequence, the page numbers referred to in the comments do not correspond to page numbers in the technical summary.

The report indicates that the Large Research Animals billing system is maintained and operated by the Central Services Accounting Branch which does not have any documentation available on the system. While I agree that a procedures manual does not exist for this manual process, I made the decision about a year ago to expedite automating the system rather than writing a procedures manual. I prepared a systems analysis document for issues, holding days and special procedures which was provided to DRS staff and the Contractor working for DRS to automate the system. This systems analysis document was made available to GAO. Thus, I believe the implication that a deficiency exists because the manual procedure was not documented should not outweigh the fact that we have been automating this system and that systems documentation does exist.

GAO Note: These comments did not result in a change to the technical summary.

The draft indicates that an internal control deficiency exists in the Supply Operations Branch billing system because there is "no up-front validation of common accounting numbers (CAN) for NIH credit cards". The conclusion is that goods can be purchased with an expired or invalid credit card. I do not believe this warrants being labeled an internal control weakness. Each year the fiscal year indicator and the color of credit cards changes. Personnel in the stores are instructed on the proper usage of cards. I am not aware of any cases where an expired card was used. In any event, if an expired card was accepted the only impact is that the wrong fiscal year would be charged for the purchase. This would be identified on the weekly 12 reports and the monthly bills sent to the BIDs budget officer.

Regarding invalid credit cards, I am not sure what is meant but I will assume an invalid credit card is one that had a CAN imprinted on it that did not exist or was not valid in the current fiscal year. If this occurred it would be identified in the same month that it was used because it would reject from the monthly billing system. A copy of the signed receipt would be obtained and the BID identified by a 3 digit code that is also imprinted on the credit cards. The Administrative Officer of the area would be notified, the correct CAN would be charged and the card would be corrected. I do not believe the vulnerability or risk of fraud, waste or abuse exists to label this an internal control deficiency.

GAO Note: These comments resulted in a deletion of this internal control deficiency from the technical summary.

Moreover, the report ignores the fact that beginning October 1, 1983, the Supply Operations Branch billing system that GAO reviewed will be replaced by the Inventory Management System of the ADB. Under the new system, up-front edits of CANs will occur.

GAO Note: This comment has been incorporated in the technical summary. See page 21.

Also, there are some editorial changes required in the report. For example, we are the Division, not the Department of Financial Management. It is the Biomedical, not Biological Engineering and Instrumentation Branch. Printing and Reproduction is a branch rather than an office.

GAO Note: These editorial changes have been incorporated in the technical summary. See pages 5 and 18.

Finally, I do not believe the GAO understands the true purpose of the Administrative Data Base. It is not "the subsidiary ledger for procurement of goods and services" as indicated in the report.

GAO Note: This comment has resulted in a change to the technical summary. See page 4.

Note to Mr. George

08/30/83

FROM: Chief, PAAB

RE: GAO Draft Report, "The National Institutes of Health - Its Responsibilities, Activities, and Financial Management Structure"

Page 3 - "National Institute of Environmental Health Services" should be changed to "National Institute of Environmental Health Sciences."

Page 4 - "National Institute of Arthritis, Metabolism and Digestive Diseases" should be changed to "National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases."

GAO Note: These comments have been incorporated in the technical summary. See pages 2 and 3.

Page 6 - The description of IMPAC should be changed to read, "is a computer based information system dealing with the extramural programs of the NIH, as well as other agencies of the PHS." While they (and any one else, for that matter) may "record NIH grant obligations," I believe that some may draw the erroneous assumption from that phrase that IMPAC contains the official obligations.

GAO Note: This comment did not result in a change to the technical summary.

Page 14, fourth line from bottom - The word "principle" should be changed to "principal."

GAO Note: This editorial change has been incorporated in the summary. See page 9.

Page 15 - The sentence regarding the "error listing" (third line from the top) appears to be entirely out of place. GAO may have intended it for usage in the first paragraph on page 14.

GAO Note: No changes were made to the summary as a result of this comment.

Page 22, dealing with IMPAC - The words "records" and "accounted for" again raise the possibility of misunderstanding the true mission of IMPAC. I suggest that "contains" and "reflected," respectively, be used instead.

GAO Note: This comment resulted in a change to the summary. See page 14.

Page 25, Internal Control Strengths and Weaknesses - In fact, we have no "control over cash drawdowns" but because DFAPS has the payment responsibility and letter of credit drawdowns is based upon a "pooling" concept, why should this be considered an "NIH weakness?" As for us not being "assured that contractors and grantees are reporting all expenditures":

1. It would be fiscal stupidity for a recipient not to report all expenditures because his quarterly "cash reconciliation" with DFAPS would clearly reflect an excess of cash on hand, which DFAPS would require to be refunded, or used as an offset to a future drawdown, or even to reduce his monthly ceiling under letter of credit drawdown.
2. Each DFAPS Report 27 is signed by the recipient under a certification "that the disbursements and Federal cash balance figures shown hereon are correct to the best of my knowledge...", which is prefaced by the phrase, "under penalties of perjury."
3. Whatever inaccuracies may have occurred will be corrected in the closeout phase based on expenditures reports submitted by the recipient to us.

GAO Note: These comments did not result in a change to the technical summary.

The first comment under Control Weaknesses found in the attachment to the report speaks to our lack of control over cash advances, IMPAC, and DFAPS. The recommendation that "These two functions should some how be merged into one NIH system" needs discussion, to be sure!

GAO Note: This comment resulted in a change to the summary. See page 27.